We Claim:

1.   A method for compressing received data comprising a first received component and a second received component, the method comprising:

(a)   receiving an interleaved stream of a first plurality of first received component samples with a second plurality of second received component samples;

(b)   converting the first received component to a first converted component in accordance with a statistical characteristic; and

(c)   converting the second received component to a second converted component in accordance with the statistical characteristic, wherein a resolution of at least one of the converted components is reduced with respect to a corresponding received component.

2.   The method of claim 1, further comprising:

(d)   determining the statistical characteristic that is associated with the first received component and the second received component.

3.   The method of claim 1, wherein (b) comprises mapping the first received component to a plurality of bins in accordance with the statistical characteristic in order to form the first converted component and (c) comprises mapping the second received component to the plurality of bins in accordance with the statistical characteristic in order to form the second converted component.

4. The method of claim 1, further comprising:

(d) transforming the first converted component into a first transformed component and the second converted component into a second transformed component , wherein a first transformed plurality of first transformed component samples is interleaved with a second transformed plurality of second transformed component samples;

(e) interleaving a first transformed plurality of first transformed component samples with a second transformed plurality of second transformed component samples;

(f) quantizing the first transformed component into a first quantized transform and the second transformed component into a second quantized transform; and

(g) interleaving a first quantized plurality of first quantized transform samples with a second quantized plurality of second quantized transform samples.

5. The method of claim 4, further comprising:

(h) encoding the first quantized transform into a first compressed component and the second quantized transform into a second compressed component; and

(i) interleaving a first compressed plurality of first compressed component samples with a second compressed plurality of second compressed component samples.

6. The method of claim 1, wherein the first received component corresponds to a received In-phase (I) component and the second received component corresponds to a received Quadrature (Q) component.

7. A computer-readable medium having computer executable instructions for performing the steps recited in claim 1.

8.   An apparatus for compressing received data, the received data comprising a first received component and a second received component, the apparatus comprising:

a preprocessor that converts the first received component to a first converted component and the second received component to a second converted component in accordance with a statistical characteristic of the received data and that interleaves a first plurality of first received component samples with a second plurality of second received component samples; and

a transform module that transforms the first converted component into a first transformed component and the second converted component into a second transformed component and that interleaves a first transformed plurality of first transformed component samples with a second transformed plurality of second transformed component samples.

9.   The apparatus of claim 8, further comprising:

a quantizer that quantizes the first component into a first quantized transform and the second transformed component into a second quantized transform and interleaves a first quantized plurality of first quantized transform samples with a second quantized plurality of second quantized transform samples.

10.   The apparatus of claim 9, further comprising:

an encoder that encodes the first quantized transform into a first compressed component and the second quantized transform into a second compressed component and that interleaves a first compressed plurality of first compressed component samples with a second compressed plurality of second compressed component samples.

11.   A method for decompressing data in order to approximate original data, the original data comprising a first original component and second original component, the method comprising:

(a)   receiving an interleaved stream of a first converted plurality of first converted component samples and a second converted plurality of second converted component samples;

(b)   obtaining a first converted component and a second converted component;

(c)   converting the first converted component to a first decompressed component in accordance with a statistical characteristic; and

(d)   converting the second converted component to a second decompressed component in accordance with the statistical characteristic, wherein at least one of the decompressed components comprises a greater number of bits than a corresponding converted component.

12.   The method of claim 11, further comprising:

(e)   determining the statistical characteristic that is associated with the first original component and the second original component.

13.   The method of claim 11, wherein (c) comprises mapping the first converted component to the first decompressed component from a plurality of bins in accordance with the statistical characteristic and (d) comprises mapping the second converted component to the second decompressed component from the plurality of bins in accordance with the statistical characteristic.

14.   The method of claim 11; wherein the first original component corresponds to an original In-phase (I) component and the second original component corresponds to an original Quadrature (Q) component.

15.   The method of claim 11, further comprising:

(e)   splitting the first decompressed component from the second decompressed component.

16.   The method of claim 11, wherein (a) comprises:

(i)   obtaining a first quantized transform and a second quantized transform;

(ii)   inverse quantizing the first quantized transform into a first transformed component and the second quantized transform into a second transformed component; and

(iii)   inverse transforming the first transformed component into the first converted component and the second transformed component into the second converted component.

17.   The method of claim 16, wherein (i) comprises:

(1)   obtaining a first compressed component and a second compressed component; and

(2)   decoding the first compressed component into the first quantized transform and the second compressed component into the second quantized transform.

18.   A computer-readable medium having computer-executable instructions for performing the steps recited in claim 11.

19.   A computer-readable medium having computer-executable instructions for performing the steps recited in claim 12.

20.   An apparatus for decompressing data, the apparatus comprising:

a decompression module that obtains a first compressed component and a second compressed component, that converts the first compressed component to a first decompressed component and the second compressed component to a second decompressed component in accordance with a statistical characteristic of the data, and that interleaves a first plurality of first compressed component samples with a second plurality of second compressed component samples; and

a component separation module that splits the first decompressed component from the second decompressed component.

21. A method for quantizing a transformed first component and a transformed second component, the method comprising:

(a) selecting a quantization conversion table according to a data type associated with received data; and

(b) modifying the first transformed component into a first quantized transform and the second transformed component into a second quantized transform according to a corresponding entry of the quantization conversion table.

22. The method of claim 21, wherein (a) comprises:

(i) if the received data includes header information, parsing the header information to obtain the data type; and

(ii) if the received data does not include the header information, analyzing the received data to deduce metadata and utilizing the metadata to determine the data type.

23. The method of claim 22, wherein (ii) further comprises:

(1) if the metadata is not associated with a known data type, identifying the data type as a default data type.

24. The method of claim 22, wherein the metadata is selected from the group consisting of a mean, a standard deviation, a maximum value, and a minimum value of the received data.

25.   An apparatus for compressing received data, the received data comprising a first received component and a second received component, the apparatus comprising:

a preprocessor that parses header information if a header is included with the received data and that deduces metadata from the received data if no header is included with the received data; and

a quantizer that obtains the metadata from the preprocessor and deduces the data type from the metadata, that selects a quantization conversion table corresponding to the data type, and that quantizes a first transformed component into a first quantized component and a second transformed component into a second quantized component by utilizing the quantization conversion table, wherein the first transformed component and the second transformed component are derived from the first received component and the second received component, respectively.

26.   The apparatus of claim 25, further comprising:

a transform module that transforms a first converted component into the first transformed component and a second converted component into the second transformed component.

27.   The apparatus of claim 26, wherein the preprocessor converts the first received component into the first converted component and the second received component into the second converted component in accordance with a statistical characteristic of the received data.

28.   The apparatus of claim 26, wherein the preprocessor provides a metadata output that is combined with the first transformed component and the second transformed component.

29.   The apparatus of claim 25, wherein the quantizer notifies the preprocessor whether a corresponding data type cannot be identified from the metadata.